

**MARKET POWER
AND OTHER COMPETITIVE ISSUES
FOR RETAIL ELECTRIC COMPETITION**

**A REPORT TO THE
MISSOURI PUBLIC SERVICE COMMISSION'S
TASK FORCE ON RETAIL ELECTRIC COMPETITION**

**FROM
THE TASK FORCE'S WORKING GROUP ON
MARKET STRUCTURE AND MARKET POWER**

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CHAPTER 1

MARKET POWER AND RELATED COMPETITIVE ISSUES

A. VERTICAL MARKET POWER ISSUES

Vertical market power involves the ability of a firm to control an essential element in the vertical production chain and, through that control, cause competitors to be at a disadvantage through either restricted access or higher costs for the products or services required to produce and deliver the specific product. In electricity production, the transmission of electricity has been the central focus of vertical market power.

1. Utility Control of the Transmission System

Potential Problem: Even with the Federal Energy Regulatory Commission (FERC) requiring open access on the transmission system and separation of the operation of transmission from generation/power marketing functions the local utility control area operator makes the final determination of what transactions can and cannot be allowed. The generation competitors may perceive that the transmission operator will favor its affiliated generation company in delivering their generation to end-use consumers within the utility's traditional service area, and can do this in the name of maintaining the reliability of the transmission system.

Possible Mitigation(s):

- a) The State Legislature could require total separation of transmission from the competitive business of generation; or
- b) The State Legislature could require transmission owners to join Independent System Operators (ISOs); or
- c) Without an ISO, the FERC could implement strict enforcement and auditing of its Order 889 rules.

2. Pancaked Transmission Rates

Potential Problem: While FERC Order 888 requires open access to the transmission grid, the transmission prices filed under this order were made on an individual utility basis. For a transaction involving generation in one control area and load in another control area, the transmission customer must pay the transmission rates of each of the utilities on the Acontract path@connecting generation to load. This Apancaking@ of transmission rates will narrow the relevant geographic market for generation and will give the local utility a pricing advantage in marketing power to local load customers.

Possible Mitigation(s): The State Legislature could require local utilities to join an ISO or regional transmission group that has a regional transmission rate that eliminates the pancaking of individual utility transmission rates; e.g., either regional license plate or postage stamp transmission rates.

3. Consolidation of Certain REPs with Businesses Having Technologies that are Advantageous to Marketing Electricity

Potential Problem: Business consolidation and partnerships formed to achieve bundled customer services may prevent some REPs from accessing available technology. For example, a merger of a company that provides a service using a limited radio frequency bandwidth with a REP could preclude other REPs from using a like or competing technology that requires the same bandwidth.

Possible Mitigation(s): Require all entities (whether REPs or other business entities) that provide utility related services using physically limited resources to provide all REPs access to the same services at the same rate offered to its affiliated REP.

4. Utility Control of Distribution Facilities

Potential Problem. In the direct access and hybrid market structures, the incumbent utility's control over physical distribution could give it an unfair competitive advantage. Many decisions made by the LDU in the process of managing the distribution function can be used to favor their affiliated REP.

Possible Mitigation(s):

- a) Require nondiscriminatory access to distribution, including unbundled tariffs, to all REPs and implement rules for the operations and maintenance of the distribution system; or
- b) Require total separation of generation and/or REP from distribution through divestiture or structural separation.

B. HORIZONTAL MARKET POWER ISSUES

Horizontal market power is the ability of a single firm or small group of firms to control the price of the product. In the case of a single firm, horizontal market power is associated with a situation in which the firm having horizontal market power is a dominant firm with little threat of competition and significant enough barriers to entry to maintain dominance in the market. In the case of a small group of firms, horizontal market power can occur through explicit collusive behavior or through strategic behavior that jointly maximizes the self interest of each of the firms.¹

1. Restrictions on Competition from Limits on Transmission Import Capability

¹One of the reasons that explicit collusion is likely to fail is that it depends on an agreement among the participants to withhold supply from the market. If one of the firms cheats on the agreement and offers more than the agreed to amount, that firm will, in the short run, make more profit.

Potential Problem: If a market area currently being served by generation facilities of a single provider has a substantial portion of its load that can only be served by that single provider during a significant number of hours, then that provider will have significant market power in that market area.

Possible Mitigation(s):

- a) Require that a certain amount of electricity from local generation be sold outside of its current service territory, thereby increasing the import capability into that area.²
- b) Require the incumbent utility to expand its transmission import capability in order to reduce the amount of load and the number of hours for which it has significant market power. The cost of these new transmission facilities would first be approved by the Missouri Public Service Commission as necessary for reducing market power and then approved by the FERC for collection in transmission rates.
- c) Set caps on wholesale prices that local generation can receive during the hours in which it has significant market power, including must-run provisions which would prevent local generation from being withheld.
- d) Provide incentives for competitive generation to locate within the service territory in order to cut down on the incumbent's local market power, including local distributed generation initiatives.
- e) Implement long-term bid requirements that prevent local generation from manipulating supply.
- f) Require divestiture of generation facilities.

2. Leveraging the Market Clearing Poolco or PX Price

²Additional import capability provided in this manner is only as reliable as the physical flow of power associated with the sale that created this import capability. Also, utilities currently do not allow a transmission reservation or schedule in one direction to create additional firm available transmission capacity (ATC) in the direction opposite of the reservation or schedule. For these reasons this mitigation measure may prove less effective in mitigating horizontal market power than other measures that are available.

Potential Problem: If the poolco or PX sets the market clearing price (MCP) equal to the highest bid accepted for a given hour and pays this MCP to all generators whose bids are equal to or lower than the MCP, then any entity with an array of generation units with various marginal costs will collect additional revenues on all of its low-bid/low-cost generation whenever the MCP increases. This provides an opportunity for such entities to take the risk of bidding power from units they expect to have marginal costs that will determine the MCP for that hour at a level slightly higher than the marginal cost of those units. If there are only a limited number of competitors, this bidding strategy will likely cause the MCP to increase, thus providing the entity with higher payments from the poolco on all of its accepted generation. Even if the higher bid price results in generation not being accepted by the poolco from some of the entity's marginal units, the associated loss of profit from those marginal units may be more than offset by the additional revenues received by the entity from its low-bid/low-cost generation.

Possible Mitigation(s):

- a) Require must-run dispatch of certain generation units, which are then regulated with respect to price.³
- b) Restrict the generation paid a single MCP to those providing generation at the margin for the hourly spot-market.
- c) Expand the transmission system to reduce transmission constraints to the point where there is sufficient competition in generation that significant leveraging is not possible.
- d) Divest generation into enough multiple owners that significant leveraging is not possible.

³For example, those units that would otherwise be earning additional revenues from leveraging could be capped at a regulated price.

C. SPECIAL MUNICIPAL/COOPERATIVE ISSUES

A separate section on competitive issues specific to municipals and cooperatives is included in this report because these entities come from a structure outside of the context of profit making.

Municipals are not-for-profit entities of city governments that provide electricity services to residences of the municipality. Cooperatives are also not-for-profit entities that were initially formed by groups of individuals that did not live within areas with electric service available from either investor-owned or municipal systems.

1. Sunshine Law Implications for Requiring the Municipal to Have a Separate REP (Merchant) Function

Potential Problem: The ~~A~~sunshine law~~@~~ requires that any and all records of a unit of local government, and all meetings, must be open to the public. The act allows records to be closed for a limited number of reasons; primarily lawsuits, personnel records and property acquisition negotiations. Declaring something ~~A~~proprietary information~~@~~ is not provided for in the act. It does not make much sense to require a separate ~~A~~marketer function~~@~~ from the LDU function for a municipal if any and all information regarding both must be open to all.

Possible Mitigation(s):

- a) Eliminate the requirement for separation of the functions for municipals; or
- b) Modify the state's ~~A~~sunshine law~~@~~ to provide for the required separation.

2. Disclosure of Customer Records and Marketing Offers Including Prices and Conditions

Problem: The Asunshine law⁴ does not allow a municipal utility to have any confidential information regarding its customers, their records or, in the case of a marketing function, the prices and contracts with customers. This puts a municipal utility at a distinct disadvantage in that its competitors can demand full disclosure of all prices and conditions but can refuse to offer the same in return.

Possible Mitigation(s): There should be consistency of treatment. In order to achieve this consistency, the Asunshine law⁴ would need to be amended to exempt confidential customer information on prices and conditions of service of municipal utilities.⁴

3. Prohibition for Certain Cities to Sell Electricity Outside Their City Limits

Problem: Depending upon the size and class of a given city, state law prohibits the municipal from selling electricity outside its city limits. If others are going to be allowed to come into the city and take some of its customers, it will need the authority to make sales outside its city limits to attempt to recoup some of its lost revenues.

Possible Mitigation(s): Make provisions to change the state law to allow sales of electricity by municipals outside their city limits. Since many municipals are small, it may also be necessary to modify the Municipal joint action law to allow the Missouri Joint Municipal Electric Utility Commission to aggregate the members' generation and make those sales.

4. Restrictions on Markets Available to Cooperatives

⁴The State Legislature has made some accommodations for the Public Service Commission in this regard, so it would seem that a similar thing could be done for municipals.

Problem: By state law cooperatives cannot provide service to anyone living within a municipality with a population over 1,500 or to anyone who is not a member ("1500" and "member sales only" rules).

Possible Mitigation(s): Change the state law to permit cooperatives to provide service to anyone requesting it.

5. Restrictions on Services that Can be Offered

Potential Problem: Municipals and cooperatives are restricted by state law as to the types of services they can offer. Municipals, for example, are prohibited from offering telecommunication services. Cooperatives are prohibited from offering natural gas services. Efforts were made last year in the State Legislature to prohibit all electric utilities from offering any value-added services except the sale of electric energy and metering. These types of restrictions will place various municipal and cooperative utilities at a distinct competitive disadvantage if others are allowed to market value-added services and they are not.

Possible Mitigation(s): Any prohibitions should be removed so that all REPs have the same opportunities to provide value-added services.

6. Inability of Cooperatives to Bundle Natural Gas with Electricity

Potential Problem: Incumbent utilities and marketers will have significant opportunity to leverage bundling of fuel with electricity, particularly with commercial and industrial accounts; while cooperatives organized under RS 394 are not permitted by state law to engage in sales of natural gas. Retail customers may be enticed to purchase a package which has one energy source priced slightly below average market in order to significantly overprice the other. This is particularly likely to occur when one energy source dominates the customer requirements.⁵

Possible Mitigation(s): Amend state law to permit all electricity retailers equal access to and legal rights to market all forms of energy .

D. BARRIERS TO ENTRY ISSUES

A barrier to entry is anything that will prevent prospective providers from entering the market for electricity. It is important to note that economies of scale are no longer seen as a barrier to entry in the generation of electricity. But there are other actions which may pose threats to prospective providers from deciding to enter the market. For example, there may be governmental rules that were implemented in the context of regulation and which, if not changed, could be a deterrent to entry.

1. Predatory Pricing

⁵This issue is a special case of the more general problem of bundling electricity with anything which inevitably results in an electricity market driven by inappropriate market forces.

Potential Problem: Cash rich REPs with a significant share of a given market may be willing to sell temporarily at prices below variable (out-of-pocket) cost in order to prevent entry by smaller, but otherwise viable market entrants.⁶

Possible Mitigation(s):

- a) To the extent that a REP is affiliated with a company having a regulated business, affiliated transaction rules are required to prevent any subsidization of the competitive REP business by the regulated business.
- b) The State Legislature could give the Missouri Public Service Commission explicit authority to deal with predatory pricing. This could be done through the Commission's complaint procedures, with the Commission developing threshold tests for whether or not it will investigate and hear a complaint of predatory pricing.

2. Marketer Certificate Requirements

Potential Problem: If the state's requirements for obtaining and maintaining a certificate to sell electricity on a retail basis are too costly and burdensome, market entry may be deterred.

Possible Mitigation(s): Establish reasonable standards for marketer certification.

3. Eminent Domain

Potential Problem: When exercised by the utility alone, the power of eminent domain can be a barrier to entry. A non-utility seeking to purchase land for a generator, lacking eminent domain authority, may be dependent on a voluntarily negotiated price, whereas a utility having the power of eminent domain can force a price, thereby winning a less expensive route to site its generator.

⁶Unless specific rules regarding the use of revenues from stranded cost recovery are implemented, utilities receiving significant stranded cost payments could use the cash from these payments for predatory pricing.

Possible Mitigation(s): In the area of generation, eminent domain powers need to be available to either no generators or to all generators. One way eminent domain could be made available to all generation is to lodge eminent domain authority with the appropriate state or local regulatory authorities. In this case, the generator wishing to purchase land would first obtain regulatory permission. After granting that permission, the regulatory authority would act to condemn the land.

4. Incumbent Utility Being the Default Provider

Potential Problem: Alternative REPs may at first find it difficult to convince consumers to leave the traditional utility provider of electricity. This may cause REPs to spend additional resources to overcome the existing customer loyalty to the incumbent utility and could therefore be a barrier to entry.

Possible Mitigation(s): Do not allow the LDU to be the default provider, and inform consumers that they must make a selection from a list of properly licensed and recognized REPs.

E. LEVEL PLAYING FIELD ISSUES

Level playing field issues involve those things that would give some competitors an unfair competitive advantage over other competitors. While not exclusively related to governmental rules or policies, these can inadvertently create competitive advantages and should be changed when moving into a competitive environment for the generation of electricity.

1. Use of the Utility's Name in Its Provision of Competitive Products and Services

Potential Problem: In a market area that is currently being served by a single provider (utility), if that same provider is allowed to compete as a REP using the same name, this may be a hurdle that other REPs will have to overcome in order to gain significant market shares. Thus, all REPs will not begin competition on a level playing field.

Possible Mitigation(s): Require the REP to use a name different from the utility's current name.⁷

2. Information, Product or Services Exchanged Between the LDU and Its Affiliated REP

Potential Problem: Transactions of information, products or services between the LDU and its affiliated REP can provide the unregulated affiliate with a competitive advantage when the information, products or services are not available to competitors on the same basis as they are available to the REP.

Possible Mitigation(s):

- a) Have in place strict affiliate transaction rules that seek to prevent transactions involving information, products or services that are either below market cost or unavailable to the affiliate's competitors, requiring significant penalties and resources for effective implementation; or
- b) Not allow the affiliated REP of the LDU to participate in the competitive generation market within the LDU's service territory.

⁷In California, REPs are allowed to use the name of the parent company. However, REPs must disclose to consumers that they are a separate organization from their affiliated LDU.

3. Gross Receipts Tax

Potential Problem: Unless all REPs are required to pay the same taxes in a political subdivision, the LDU and its REP function, because they are franchised in that political subdivision, will be at a competitive disadvantage by the amount of the taxes compared to any other REP marketing in the same political subdivision.

Possible Mitigation(s): Change the tax laws to treat all participants equally.

4. Taxation Issues

Potential Problem: Different rates of taxation may give out-of-state or in-state competitors a pricing advantage.

Possible Mitigation(s): The state should take into consideration tax rates in nearby states when setting tax rates for Missouri power plants.

5. Compensation to the LDU as Default Provider

Potential Problem: If a REP fails to deliver power sold as a firm, then, as a practical matter, the LDU may become a default provider. Unless adequately compensated, this would put the LDU and/or its REP affiliate at a competitive disadvantage.

Possible Mitigation(s):

- a) Provide for recovery of all costs incurred by the LDU if it acts as a default provider of power; as well as possible financial penalties⁸ to the REP for failure to deliver power sold as firm; or
- b) Require all REPs to operate under the same rules of reliability as the REP affiliate of the LDU, where all REPs are subject to penalties for failure to deliver power sold as firm.

⁸Penalties would most likely be imposed by the ISO, with penalty payments going to the ISO.

6. Unbundling Generation Rates through Credits to Bundled Rates

Potential Problem: One method for implementing retail competition is to allow the incumbent utility to continue to provide generation services through regulated rates that are bundled, and customers are given a generation credit if generation is taken from an alternative REP. If the credit given customers for generation does not include components for all the services which alternative REPs must provide to the end-use customer, then REPs will be at a competitive disadvantage.

Possible Mitigation(s):

- a) In setting the level of the generation credit, take care to include appropriate amounts for all the components which the REP must provide; or
- b) Do not allow the LDU to offer generation at a regulated price.⁹

7. One Hundred Percent Stranded Cost Recovery through True-Up

Potential Problem: If one hundred percent stranded cost recovery based on revenues actually received by the utility for generation sales is assured through a true-up, then since utilities would recover any lost revenues, they may have an incentive to lower price to retain market share.

⁹None of the structures proposed in the Working Groups report on Market Structure include the alternative of the LDU offering generation at embedded cost rates. In the direct access structure, the LDU's affiliate REP can compete for supplying generation, but the LDU does not offer generation at a regulated rate. With the poolco structure, all competition takes place at the wholesale level within the power pool, and LDUs provide generation at the poolco's price. With the hybrid structure, the LDU is the provider of last resort and the default provider, but simply takes power from the PX at the market clearing price.

Possible Mitigation(s):

- a) Do not true-up for stranded costs that are above a preset level; or
- b) Implement a sharing mechanism between ratepayer and shareholder for true-up recovery; or
- c) Calculate revenues from competitive generation sales using the higher of market prices compared to the actual prices the utility received for the sales of its generation.

CHAPTER 2

A COMPARISON OF THE COMPETITIVE VIABILITIES FOR THE POOLCO, DIRECT ACCESS AND HYBRID MARKET STRUCTURES

A. Initial Observations on Differences in the Roles of the Participants

1. The Direct Access Structure

REPs will come from the ranks of Power Marketers¹⁰ and generation companies (GENCOs).¹¹

REPs will sell power to end-use consumers either through negotiated contracts or through standard offers of service. The REP role is to market the power to end-use consumers (a retail marketing function). In contrast, the Power Marketer role is to acquire supplies for the REP and to market the power to other Power Marketers (a wholesale marketing function).

¹⁰Power Marketing is the function of reselling electricity. The Power Marketer purchases electricity from a generator and resells that power either to another Power Marketer (financial transaction) or to a REP for scheduling to meet end-use consumer requirements (cash transaction).

¹¹GENCOs include all existing utility generation.

The area in which new participants are most likely to appear is where small retail customers form or join purchasing associations (Aggregators) that will negotiate aggregate power arrangements with REPs. REPs are not likely to negotiate individual contracts with small end-use consumers because of the administrative costs involved in the negotiation process. Instead, individual purchases by small users will likely be handled through standard offers of service made by the REPs. The reason that Aggregators are likely to form is because of the potential savings to small end-use consumers when they purchase electricity in large quantities at negotiated rates.¹² Buyers can be a strong competitive force in the market when they are able to exercise bargaining leverage over price and other terms and conditions of sale. This bargaining leverage should not be thought of as something that is acquired simply by aggregating to a large load size. Moreover, Aggregators are most likely to form where the members are fairly homogeneous in their end-use electricity requirements and where these requirements can be met at a lower cost than what is reflected in the standard offers of the REPs. In this context, Aggregators may develop as niche players that either discover and provide speciality products to their members or provide standard products to their members when their incremental sales expenses are lower than those of the REPs.¹³

2. The Poolco Structure

¹² It is important to note that Aggregators will have to develop rules for allocating the costs of the electricity among its customers. Since the impact of these rules will be equivalent to the Aggregator having a standard offer for its members, it is not clear that all end-use consumers will actually pay prices lower than the standard offer of the REPs.

¹³ For example, a trade association with readily available membership lists may be able to market electricity to

its members more cheaply than the REP that uses broader-based marketing programs.

GENCOs and Power Marketers¹⁴ will sell power to the poolco and LDUs will purchase power from that same poolco. The poolco will act as a central, market-clearing house where power is purchased at the lowest cost as determined through a competitive bidding structure. The poolco structure also allows for financial contracts known as contracts for differences (CFDs) between end-use customers and suppliers.. These contracts specify a price for electricity which has been agreed to by both the supplier and the end-use customer.¹⁵ If the customer's bill from the pool is at a price that is different from the contracted price with the supplier, there would be a reconciliation of the differences via either a reimbursement made by the supplier to the end-use customer (when pool costs to the end-use customer are above the contracted level), or a payment by the end-use customer to the supplier (when pool costs are below the contracted level).

¹⁴The Power Marketer purchases electricity from a GENCO and resells that power either to another Power Marketer (financial transaction) or to the poolco for scheduling to meet end-use consumer requirements (cash transaction).

¹⁵One reason that a CFD market might form is that both suppliers and end-use customers desire an assured price level.

3. The Hybrid Structure

The hybrid structure combines direct access with a power exchange (PX). The PX is a form of poolco in which power is purchased for two special requirements. First, the PX will purchase electricity on an hourly basis to meet the balancing needs of the system. REPs will schedule generation to meet the load forecasts of their end-use customers. To the extent that this generation does not meet the actual usage, the power exchange will purchase the difference in the hourly market and bill the REPs for the difference. This hourly market is commonly referred to as the spot market for electricity. Second, the PX will purchase electricity to meet the requirements of the loads not served by REPs in each of the LDU's service territory. In essence, the PX has the responsibility to make up any difference between what is required to meet the loads in each of the service territories and the amount of generation that has been scheduled by the REPs. Because REPs are given direct access to end-use consumers, there is no need for CFDs.

B. Differences Between Competitive Bidding and Negotiated Contracting

One fundamental difference among the three market structures is the method used for price determination in both the wholesale and retail markets. One contention is that negotiated contracts which result from bilateral transactions will yield greater levels of competition than can be obtained through the competitive bidding associated with a poolco or PX. The differences in the method used for price determination are analyzed for both wholesale and retail markets.

1. Wholesale Transactions

On the wholesale side, the question is whether or not resellers will be able to negotiate better arrangements with GENCOs than can be negotiated by a single power pool or PX. To analyze this question, the methods for setting both price and non-price terms should be considered.

A poolco or PX can request bids for hourly requirements and/or bids on a set of standard products that cover several hours, days, weeks, or even seasons. The form of these standard products can vary from base-load power (constant every hour) to swing-load power (variable every hour). In addition, reliability requirements may result in generation capacity becoming a separate product from generation energy. Based on forecasts from each LDU, the poolco or PX makes a determination of what quantities of each standard product are required. Competitive bids are ranked from lowest to highest with the associated quantities, and the poolco or PX accepts the lowest bids up to the required quantities for each product. The poolco or PX will then publish the winning bids for each product type. When suppliers are paid their bid price, the published price would be the average of all the bid prices. When a single market-clearing price (MCP)¹⁶ is paid to all suppliers, the published price would be the MCP.¹⁷ With a poolco or PX, the spot market price is transparent to all market participants, and generators, power marketers, REPs, speculators and regulators can easily

¹⁶This market clearing price is the highest bid price that is accepted by the poolco or PX. While a single market-clearing price is usually discussed in the context of an hourly spot market for electricity, paying suppliers their bid price when longer-term products are involved may be a viable alternative.

¹⁷In a perfectly competitive market, the poolco or PX price for a generation product will be the market's long-run marginal cost of supplying the quantity of the generation product required to meet end-use consumer demands.

compare contract offers to this market price. In this open environment for price revelation, it is more difficult for an entity to exercise market power that is based on buyers' ignorance of market price.

Where wholesale bilateral contracts are allowed, there is greater flexibility in the determination of non-price terms of supply included in negotiated deals. In essence this means that there will likely be more specialty (non-standard) products with resellers entering into negotiated contracts with GENCOs. The prices for these specialty products will be negotiated as a part of a total package. Neither the seller nor the buyer will have information on what the market price is for specialty products. Gaining information on prices for standard products will be an iterative process¹⁸ in which information about prices for individual transactions will primarily be gained through experience. Published prices for standard products may be available when prices are reported on a voluntary and confidential basis and then published in summary form, including averages, highs and lows for various types of standard products.¹⁹

While individual electricity costs will be below the average for the best negotiators, the central issue is how the average price from all contracts compares to the average price from competitive bidding. Absent significant market power, there is no apparent reason to believe that the average price over all contracts will be any different from the average price from competitive bidding.

¹⁸Suppliers will offer prices above their short-run marginal costs at a level that will provide them with the highest profits they believe they can make and still win the bid. If the bid is too high, then the supplier will attempt to sell his electricity elsewhere at, perhaps, a lower bid.

¹⁹A major drawback of the direct access structure is that knowledge of average prices for electricity will depend on voluntary reporting of prices to independent publications. This process may not result in prices for electricity that are valid for purposes of comparison. For example, Power Marketers need price information to hedge their risks in the market. Therefore, they have strong incentives to report prices on financial trades. However, GENCOs currently do not have these same incentives and have been unwilling to report prices to independent publications. This has resulted in a separation between financial and product markets for electricity, with the possibility that financial prices are not representative of the market prices for the product.

However, with greater product flexibility in the direct access structure, REPs serving end-use consumers that have lower cost requirements are likely to get the electricity products required to serve these customers at a lower price through negotiations than through a pool.

2. Retail Transactions

The poolco or PX may be organized so that LDUs are required to purchase electricity at the pool's hourly price, or the LDUs may be allocated their pro rata share from each of the standard products purchased by the pool or PX, with hourly pricing only playing a balancing role for the LDUs in the poolco structure or for the REPs in the hybrid structure. If LDUs are allocated shares of standard products, the pool would price these standard products to the LDUs at the poolco's cost.²⁰

While end-use customers will have the option of matching their load requirements directly with pool cost through hourly pricing, with greater product flexibility allowed through direct access, larger consumers (or aggregators of smaller customers) with lower cost-to-serve loads are likely to get their specific needs met at a lower cost. In the poolco structure, this potential advantage in direct access may be offset for customers taking transparent pricing from the pool²¹ by putting together specialized CFDs that will achieve the same cost savings as are available through negotiated contracts for physical products.

²⁰In the hybrid structure, REPs could also be allowed the option to purchase standard products from the PX.

²¹One form of this is what has been called **Real-time pricing**.[®] This is the option where customers can pay the hourly pool price for electricity. If the pool purchases power through both bilateral contracts as well as on a real-time (spot market) basis, there is no reason not to allow end-use customers transparent pricing through election of a set of standard products, with spot market prices used for balancing.

How viable the financial market in CFDs becomes will depend on the ability of suppliers to hedge their risks. If there is the possibility that a supplier will receive a lower payment for electricity supplied to the pool than the price that is charged to its end-use customer, then there is an added risk of loss from entering into a CFD . If the price paid to suppliers is the same as the price charged to buyers, then the CFDs will reflect the negotiated amount that the supplier is willing to take for the electricity. For example, if the supplier is paid 34/kWh for electricity and the buyer's bill reflects this same price, the difference between the end-use consumer's price and a lower CFD price is offset by the payment the supplier received from the pool. Specifically, when the supplier is paid 34/kWh for the electricity required to meet the customer's load, and if the contract with the customer is for 2.54/kWh, the difference of 0.54/kWh simply comes out of the pool payment to the supplier, thereby reducing the suppliers actual payment for electricity to the 2.54/kWh level in the CFD. However, if the supplier were to only get paid 2.754/kWh by the pool and the buyer is charged 34/kWh, then the CFD for 2.54/kWh would require the supplier to still make up 0.54/kWh, reducing the net payment to the supplier to 2.254/kWh. If the likelihood of differential payments is large, it is doubtful that a strong market for CFDs will develop.

If the pool is buying a set of standard products from suppliers on a competitive bid basis where suppliers are paid their bid price rather than a single MCP, then the customer would likely be charged the average of the bid prices accepted by the pool. The supplier entering into a CFD with an end-use customer would bid low to assure that its generation will be accepted, but if its bid is too low, the supplier will risk receiving a price less than that average from the pool²². An alternative would be to

²²If the pool pays suppliers the MCP for standard products, then the supplier can bid a price low enough to assure that its generation will be accepted and be assured of receiving the same price that the customer must pay to the pool.

allow suppliers with CFDs to nominate levels of standard products into the pool that match the requirements of their customers, and for which they are paid the average pool price.

The primary advantage to allowing direct access is found in the ability to negotiate speciality products. If the CFD market is viable, then the poolco structure will include the same opportunities for speciality products. Thus, if a poolco is chosen for other reasons, it is crucial that it be structured in such a way that encourages a viable financial market for CFDs. This will mean that the pool must give suppliers with CFD customers the opportunity to be paid the same price for standard products that the pool will charge the end-use customers. The most straightforward way of doing this is to allow suppliers to nominate levels of standard products into the pool for which they are paid the average pool price. With this modification, the poolco structure is beginning to resemble the hybrid structure with the added condition that all REP power must be scheduled through the poolco.

C. DIFFERENCES IN THE CONDUCT OF PARTICIPANTS

Conduct of the participants deals primarily with the degree of rivalry, particularly with respect to the ability of competitors to set prices, including monopolistic opportunities, potential for collusion and price leadership behavior. To put this another way, conduct deals with the potential that each structure provides for participants to game the system.²³ For example, at various times, import capability into local markets may be constrained, with the result that local generation is the only entity that can provide sufficient power to meet a portion of the local power demands.²³ In effect, local generation would have monopoly power in serving a portion of the local load during these periods.

A second type of gaming can occur through strategic pricing in which participants have sufficient horizontal market power to bid in ways that generate higher profits than would be found when market clearing prices are equal to the market's short-run marginal cost²⁴. This form of gaming is most likely to be found when the competitive bidding practices of the poolco or PX involves paying all bidders a MCP.

1. Monopoly Power Because of Limited Import Capability into Local Control Areas

a. Load Pockets In the Poolco or PX Structure

²³Market power analysts in the electricity industry call these highly restricted markets load pockets.²³

²⁴Market power analysts in the electricity industry call such strategic bidding the leveraging effect.²⁴

In the case of a poolco or PX, the system that could be gamed is the competitive bidding rules of the poolco or PX. For those instances where local generation has monopoly power, the poolco or PX will need to develop rules that prevent local generation from being able to exercise monopoly power within its local control area. One such method is to require local units to generate the needed power and specify that, for this generation, the local units cannot bid into the pool. In effect, for the needed local power, local generation is paid the hourly pool price based on the bids of all other generation required to meet the pool's overall demand for electricity. Notice that when there are local transmission limits on imports, the poolco or PX will be turning down lower-cost bids from generators wanting to import into local areas and will need to replace this electricity with local generation. For the portion of load over which local generation has monopoly power, the price could be determined by a pricing rule²⁵ rather than by the bids of the local generation. The local generation company would be required to supply electricity at the price set by the pricing rule (a form of must-run generation), but could be allowed to determine which of its generation units would run to meet the needed local generation of electricity.

b. Load Pockets In the Direct Access Structure

²⁵Two examples of pricing rules are: 1) the marginal costs of local generation plus an adder; or 2) price caps on allowable bids from specified units. Both rules would apply during hours of the year that load pockets could potentially result in the exercise of market power.

In the case of a direct access market structure, the system that could be gamed is the scheduling rules of the Independent System Operator (ISO) of the transmission system. When there is a constraint on the system, REPs might not be able to schedule into local areas all of the electricity required to meet their forecasted loads. The ISO must then determine whose scheduled generation imports will be cut. Those REPs having to cut imports will need to replace the generation that has been cut with local generation. In this case, if there is only one source of local generation, that source will have monopoly power over those needing to purchase local generation. The problem is how the price will be determined for generation that REPs will need to purchase to replace the generation that was cut from their schedules. If one company has a monopoly on local generation, then the price will either be the inflated monopoly price of that company, or the price will need to be regulated. If the price is regulated, then rules requiring local generation to supply at the regulated price (must-run generation) will also be required.

The structural problem is the specification of an agency to oversee the application of those pricing rules. If the ISO is the chosen agency, the effect will be to give the ISO some level of generation pricing authority. In both structures, local generation will act as a monopolist at times when import capability is restricted and a portion of the load must be served from local generation. The primary difference is that in the poolco/PX structure, the power pool deals directly with the problem; while in the direct access structure, the provision for market power must be incorporated into the ISO redispatch function. In effect, the direct access model becomes a hybrid in which the ISO has a generation dispatch function that is limited to dealing with market power problems.

An alternative to pricing rules for must-run generation is the divestiture of generation. The concept is to require the utility to sell off enough of its local generation assets to several independent companies that there would no longer be a market power problem from restricted transmission import capabilities. If the objective is to keep ISO generation pricing activities at a minimum, generation divestiture may be the only market power mitigation method available to the direct access model.

2. Strategic Pricing through Leveraging the Market Clearing Price

While the choice of a new market structure for competition will not alone create horizontal market power in generation, under certain circumstances, the use of a MCP by a poolco or PX could provide entities with greater opportunity to exploit their market power.²⁶ Specifically, the degree to which power sales are concentrated in a spot market that is paying all accepted bids a single MCP may create an environment in which rewards for high bidding exceed the risk of lost revenues.

²⁶Horizontal market power in generation can only exist when there is a concentration in market share.

a. The Leveraging Effect

Under a **pure pool** market structure, all power must be bought and sold on an hourly basis through a PX. The highest bid accepted by the PX for a given hour is the MCP for that hour. All generators whose bids are equal to or lower than the MCP receive the MCP.²⁷ All buyers pay the MCP to the PX.

²⁷This pricing method is called a **uniform** or **Dutch** auction. After all competitive bids are in, the poolco or PX proceeds to award generation, beginning with the lowest bidder, until the required generation is allocated. However, the price paid to all accepted bidders is the highest price from the accepted bids.

If all generation entities have small market shares and a limited number of bids into the PX for a given hour, those entities will keep their bids as low as financially viable to avoid the risk of non-payment from the PX due to bidding too high.²⁸ Because of transmission limitations, the number of competitors bidding into the power pool will at times be less than this ideal, and this smaller number of entities are likely to own generating units that have low, medium and high variable costs. If the PX pays the same price for all generators whose bids are accepted, a generation entity will collect additional revenues on all of its low-bid generation when the MCP rises. This provides an opportunity for such entities to take the risk of bidding a few of their generating units that they expect will be on the margin²⁹ for that hour at a slightly higher amount. If the entity's slightly higher bid is accepted by the PX, the entity earns additional revenues on all of its generating units whose bids are equal to or less than the MCP, not just on its generating units on the margin. Even if the entity's slightly higher bid for some of its generating units is not accepted, it will still earn higher revenues on its other generating units due to a slight increase in the MCP.³⁰ Since all entities with significant market shares and a mix of low, medium and high variable cost generating units can also earn higher revenues on all of their lower cost generation when the MCP rises, it can be expected that all such entities will bid their generating units on the margin at slightly higher prices than would be bid under perfect competition.³¹ This

²⁸This is the real-world characteristics of what economist call a perfectly competitive market; i.e., where there are a large number of sellers, none of whom have a significant share of the total market..

²⁹Generating units on margin are those generating units owned by an entity that have marginal costs close to the expected MCP for a given hour.

³⁰The MCP will be higher because the lower bids for the entity's units that are expected to be on the margin are no longer available to the PX.

facilitation of generation prices that are higher than would be the case for perfect competition is often referred to as the **leveraging effect** of a PX or poolco.

b. Paying Generators What They are Bid as a Mitigation to the Leveraging Effect

If generators are paid what they bid, and buyers are charged the weighted average of what generators are paid, the leveraging effect of a pure poolco that pays an hourly MCP to all generation may be mitigated. If entities are only paid what they bid, they will not be able to collect additional revenues on their lower-cost generating units by simply bidding a few of their other generators that are on the margin at a slightly higher amount. If a generating entity wants to attempt to earn higher revenues on its lower-cost generating units, it must risk the loss of revenues for those generating units by bidding their output at higher levels. Moreover, competing generating entities would not automatically earn additional revenues due to their competitor increasing the bid of its generating units on margin.

While mitigation of the leveraging effect through paying suppliers their bid prices reduces one way in which competitors can **game the system** in a market with a limited number of competitors, it does not mitigate the market power that exists because of the basic problem of too few competitors. Specifically, if competitors bid higher than the expected MCP because of a **get**

³¹ An analysis by Rudkevich, Duckworth and Rosen has shown that under a scenario in which five entities have market shares of 20% each (an HHI of 2,000), those entities can sustain revenues in excess of 15% of their marginal costs on an annual basis through such strategic bidding. [Rudkevich, R., Duckworth, M., and Rosen, R. (1997). Modeling Electricity Pricing in a Deregulated Generation Industry: The Potential For Oligopoly Pricing in a PoolCo, Tellus Institute, Boston, MA.]

what you bid@ rule, there is no reason to believe that the risk of the loss of revenues will be significant when there are a limited number of competitors in the market.

Because the leveraging effect occurs only when all or a significant portion of generators are paid the same MCP, another possible solution to the leveraging problem is to limit the payment of a MCP to only the spot-market, requiring all other longer-term transactions within the poolco or PX to be paid their bid price. With this approach there is a concern that all generators may bid higher prices for longer-term products thinking that if their bids are not accepted, they may be able to still earn higher profits through leveraging in the spot-market. In order for there to be sufficient generation remaining in the spot-market for the leveraging effect to occur, there would need to be transmission constraints that cause the number of competitors in the longer-term markets to be restricted. If this is the case, then other types of mitigations may be needed.

c. Other Possible Mitigations to the Leveraging Effect

Significant excess profits can only be made from leveraging when there are a small number of entities involved in the bidding process. This can only occur when there are transmission limits within a region that prevent outside generators from competing in that region.³² If leveraging is producing higher profits in the region, then, absent significant transmission limits into the region, these higher profits will attract generation supply into the region. This added competition will drive prices down and thereby negate the potential harmful effects of leveraging.

Potential competition can come from generation located outside the region, or from new generation locating within the region. Because an established pool provides new producers with

³²The poolco structure sets the regional market to be the state of Missouri, and the hybrid structure sets the regional market for the PX to be the area served by the relevant ISO.

an option for their power supplies that does not require marketing generation to retail consumers, over time this additional option may help mitigate potential market power by easing barriers to entry for new producers.

In the near-term when the degree of competition is dependent on existing generation, the times that leveraging might be a significant problem is when either the amount of local generation offered into the regional market or the amount of must-run generation specified to meet load pocket problems does not reduce regional transmission congestion to the point where significant competition can enter the regional market from generation located outside the region. Whether or not this will be the case will need to be determined by modeling the regional system. If competition from outside the region is sufficiently restricted so that leveraging is a significant problem, then the poolco or PX could expand the amount of local generation that must be provided on a must-run basis at regulated prices to insure sufficient competition from generators outside the region. If this results in a substantial amount of generation being sold at regulated prices, alternative mitigations to consider are: 1) the expansion of the import capability into the region; or 2) requiring the divestiture of generation to enough multiple owners that leveraging would not be a significant problem.